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NEWS IN BRIEF CMC takeover takes off

CMC UK looks set to be owned by McDonnell Douglas within the next two weeks, now that the board of Microdata, CMC's US parent, has unanimously recommended that its shareholders accept the aerospace giant's cash offer (CW, July 19). The offer is \$32 for each of Microdata's 2.3 million shares, valuing Microdata at £73.6 million.

Industry sources indicate that McDonnell Douglas wants Microdata so that it can offer local processing facilities to the customers of its subsidiary, McAuto, one of the biggest service bureaux in the US.

\$1m loan

BASE has made a \$1 million three-year interest-free loan to the US firm, Digi-Log, whose microcomputer system is now being sold in Europe by BASE as the System 7000 (CW, June 28). Another \$1 million is likely to be loaned next year and BASE has the option to convert the debt into 20% of Digi-Log's stock.

Super profits

ANNOUNCING a net profit of nearly \$2.9 million and a turnover of more than \$12.4 million for the second quarter of 1979, Cray Research has attributed the profit to its sale of the Cray-1 supercomputer ordered by the UK Ministry of Defence last year (CW, April 26, 1978). First half turnover and net profit figures were \$24 million and \$5.7 million, respectively.

Computer census

DETAILED statistics on the numbers of computers installed in the UK, broken down by supplier and model, are contained in the 6th Annual Census of Computer Systems published by Plessey Associates of Kingston-upon-Thames. The census, which costs £475, shows that the total installed base at the end of 1978 was 83,537 systems — 12,217 more than a year before.

The multi-funtion capability makes it of principal interest to those with special applications dealing with contracts such as statutes, reports and contracts.

Word processing work in the legal field dealing with contracts is already being done this way in the US, and the Aetna Insurance Company has one machine on trial, for purposes which it is keeping secret.

NEB invests in US firm

• From front page.

Q1 produces two products, the main one being the Q1 Light. This is a multi-station, multi-function distributed processing system. Up to 32 workstations can be multiplexed together to form a network. Each workstation consists of a microcomputer, plasma display and keyboard, and can run up to four floppy disc drives giving a storage capacity of 2.4 Mbytes. The second product is the Microlight, a self-contained workstation incorporating a plasma display, eight inch matrix printer, keyboard, two floppy disc drives and the microcomputer.

This can operate either as a stand-alone system, or be connected into the Q1 system.

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'Settle 10-year-old IBM case,' says ex-law chief

GRIFFIN Bell, who retired as US Attorney General last week, in his farewell speech urged the US Justice Department to settle its 10-year anti-trust suit against IBM.

Bell, whose Atlanta law firm used to be retained by IBM, said that the duration of the IBM case suggested there might be something wrong with the US court system.

Bell added that he would have tried to settle the case himself if he had not pledged to the confirmation hearings (when he became Attorney General) to stay out of the case because of his firm's prior involvement.

In a published memorandum they said that IBM's accusations (against Judge Edelstein) were not timely or sufficient and thus did not satisfy the statutory requirements for the withdrawal of the judge.

They pointed out that IBM complacently soldiered through three years of pre-trial proceedings and more than four years of trial before its alleged dissatisfaction with Judge Edelstein's rulings and comments precipitated second thoughts.

The government lawyers added that IBM had failed to demonstrate Judge Edelstein's stewardship of the case had been tainted by prejudice or bias.

Bell's remarks about the IBM case were part of a wider attack on the Justice Department's anti-trust division in which he criticised the division's tendency to assume that competition was all that mattered.

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Bell's remarks about the

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GOVERNMENT COMPUTING
ROYAL AIRCRAFT ESTABLISHMENT
BEDFORD

A mini computer system is required by A53 Division of Aerodynamics
Department at RAE Bedford to replace the current dual Honeywell 318
configuration. The system is required for real time data acquisition and
computation and to provide a limited simultaneous program development
facility via terminals.

It is not exactly unknown for
salesmen to be hazy about their
own product and services — let
alone those of their rivals.

Show them a door and they
will promptly knock on it. But
show them a time critical prob-
lem and they will hastily back-
off and return later with their
area manager in tow.

DP managers frequently find
themselves more conversant

Is the NEB on the right track?

THEIR is no doubt that the
National Enterprise Board has
been doing its best to help the
UK computer industry.

It supported ICL and Ferranti
through their lame duck days of
the early Seventies and has thus
helped produce two increasingly
successful companies.

More recently it has moved into
the areas of software mar-
keting and office systems
through Insaic and Nexus, and
made a start at getting the UK
into the international
microelectronics business in a
big way through Inmos.

Whatever one thinks about
the progress and potential — or
otherwise — of Insaic, Nexus and
Inmos, one has to admit that the
moves are bold and innovative,
especially for a government
organisation. Government back-
ing tends to be associated with
research or keeping jobs going,
but the formation of Insaic has
shown that civil servants do,
after all, realise that products
have to be sold and that mar-
keting, too, costs a lot of money
and can need government funds.

Insaic has also proved that
government backing does not
necessarily have to involve
government take-over. Member
companies have spoken very
highly of the way Insaic
operates.

So far, then, the NEB has done
much to counter its image as a
hothouse for lame ducks. It has got

on with the practicalities of
finding the best forms of support
for the UK computer industry
while others, notably the National
Economic Development
Council's working parties and
sub-committees, have talked
and produced less than startling
reports which have yet to be
acted on to any great degree by
government.

In the last two months, how-
ever, the NEB has made some
puzzling moves which could
further alienate a government
which is not obviously keen on
public ownership of industry.

First, the NEB decide to put £8
million into a joint manufac-
turing company set up by UK
firm Data Recording Instru-
ment and Control Data's disc

drives are to be the first products
made by the new company.
Magnetic Peripherals said it

will bring some
expertise to the UK. But the US
companies involved are going to
want a big say in how the UK
operations are run.

The NEB has done a good job

in the past for the UK computer
industry but these latest moves
are questionable and could pro-
vide the Conservative govern-
ment with ammunition to kill off
the NEB.

It would be a great pity for the
computer industry if the NEB's
keenness to get further into the
industry led to its downfall.

with product technology than
the salesman. If any incentives
are to be lavished about, it
should be the DPM who reaps
the reward for his patience,
tolerance and time.

In the meantime, the speed of
disappearance which is featured
by the sales team following the
signing of the contract suggests
that in the world of fitness and
agility, they have few equals.

In any case, few salesmen like
standing still. Even the hint of a
possible prospect will have them
bumping all international
records to be first on the scene.

It is about time that the
ground rules for salesmen were
revised: Novice salesmen should
not be tried out on busy DP
managers. Sales commission
should not be paid until the DPM
has certified that all is in order.

Delivery times should be
guaranteed; and failure to pro-
vide the goods should invoke
compensation, possibly to be
taken from the sales commis-
sion.

Many DPMs would agree that
salesmen would benefit from
less motivational seminars and
more concentration on basic
training.

It is not exactly unknown for
salesmen to be hazy about their
own product and services — let
alone those of their rivals.

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show them a time critical prob-
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1984 and all that...

THIS WEEK'S example of the strange things people say in the media
about computers was sent in by J. C. Smeathers, of Cheadle, who
wrote: "E-mail."

Why aren't all the Kinks' discs still in the catalogue? The answer to this is
that companies are often run by accountants and other folk who have no
love of music or by computers who can more readily be forgiven their
sins.

New Musical Express

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This revolution will be unstoppable

Dr Christopher Evans

If the computers of yesterday were a Goliath, their David of today is the micro. The micro is destined to benefit every individual but, in order to reap the benefits, society will undergo traumatic changes.

Some of these changes will inevitably occur in Man's own concept of himself, and the advent of intellectual activity in machines will have far-reaching resonance. It will be necessary for psychologists to re-examine human intelligence and redefine our concepts of thinking, learning and perception.

In his book *The Mighty Micro*, Dr Christopher Evans, computer scientist and psychologist, has put forward the notion of a three-stage revolution which he says has already begun.

Stage One (1975-1982) is the dawn of public awareness in terms of computers, the stage of gimmicks and toys which is already evident.

Stage Two (1983-1990) will be when we see the first large-scale changes in the patterns of work and education, economics and social life.

Stage Three (1991-2000) will be signalled by political upheavals, and the vastly important emergence of the ultra-intelligent machine.

"As with the Industrial Revolution it [the Computer Revolution] will have an overwhelming and comprehensive impact, affecting every human being on earth in every respect of his or her life," writes Dr Evans.

"Again, paralleling its predecessor, it will run at a gallop, though its time course will be shorter and its force may well be spent, not in 150 years, but in 25.

"Thirdly — again note the parallel — once the Revolution is under way it will be unstoppable... but there is an essential point of difference: whereas the Victorian machine age began, surged into motion and, indeed, almost ran its course before most people were aware of what had happened, we of the

A universe of possibilities has been opened up to society following the Big Bang of the micro.

Directly or indirectly, its effects will be felt; but whether we will accept the challenge as an intelligent, reasoned way or shuffle uncomprehendingly into the future is some-

thing only future history itself can tell.

In his new book, *The Mighty Micro*, Dr Christopher Evans has done much to modify the Machiavellian aura generally attributed to computers and has closely examined each

layer of the future to it social, economic or political.

In this interview/book review ROBIN WEBSTER takes a look at some areas that Evans believes are the most controversial and which will have the most far-reaching impact on every individual.

closing years of the 1970s have the gift of foresight, the ability to contemplate — if not for long — the amazing change that may be about to force upon himself.

With this foresight then, we can ask: what will the effect of computers on the human potential be? Will reliance on such machines degrade us in some way to work our advantage?

When I posed this question to Dr Evans he stated: "It might well be that the human mind will develop far more rapidly in communication with elaborate media devices supplemented by computer power than in any discussion with other human beings.

"Since there is no alternative, anyway, there is little point in discussing the matter. People are going to be more at home with the computer even though many still view them as alien things."

"Emotional organiser that restricts the randomness of human nature" is indeed how many people would describe computers, but Dr Evans, like others, feels that greater expression rather than restriction will be made possible.

Moreover, he predicts that the introduction of certain devices in the early 1980s will lead, by the end of that decade, to the death of the printed word.

"The fact that we like the feel of paper and the feel of a well-bound book on a shelf will have to change no matter how reasonable such prejudices are," he said.

Filling in the detail in his book he writes: "The read-out terminals of the late 80s will be about the size of the average book today, and, of course, you will only need one of them.

"The screens on which the text is displayed will vary in size depending upon what one wants — page-size for the hand-held book, wrist-size for quick reference and portability, a ceiling projection for reading in bed in absolute comfort — at last!"

"So far we have been talking about the book as an entertainer or informer and, to this extent, the 'books' of the 1980s and beyond are not really different in principle from today's."

"But in one respect they do differ, and it is here that the electronic book revolution will have its greatest impact."

By this Dr Evans means that, while the printed book is merely a passive device that transfers information from the mind of one individual (the author) to that of another (the reader), the 1980s computer equivalent will do far more.

"It will be a sifter and interpreter as well as a purveyor of information. Dictionaries, to give the most simple example, will offer packages of relevant information on command."

"You type in a word or a phrase describing the problem area and the computer will respond, probably with one or two questions probing the nature of your interest, and finally by generating a balanced summary with appropriate background information."

Encyclopaedias will be smart too, says Dr Evans, and capable

of doing their own research. But there are problems to surmount; for, if a book is required to "know" its contents, it must have some technique of linking concepts.

"Scanning and classification is quite easily performed by human beings, but is simply too much for computers with their present, rather feeble intelligence," writes Dr Evans.

"Nor is it a trivial problem to equip computers with the kind of programs which would allow

Intelligence Quotient scale so the human mind does not average out at an IQ of 100, but 1,000,000.

At the bottom we have the decidedly unintelligent "species", rock, and just above that at an IQ of 10 we might have the amoeba. Fish cover the 50,000 to 100,000 range.

That gives us an indication of how far ahead we are of the lower orders of life.

Even placing the first generation of UIM at Man's average IQ level may not seem terribly

ant solution which, while not entirely free from flaws, is nevertheless the best that has yet been put forward.

"The key to all, he pointed out, is to ask what the signs and signals are that humans give out, from which we infer that they are thinking?

"It is clearly what kind of conversation we can have with them, and has nothing to do with what kind of face they have and what kind of clothes they wear..."

Instead: "Put a human — the judge or tester — in a room where there are two computer terminals, one connected to a computer, the other to a person.

"The judge, of course, does not know which terminal is connected to which, but can type into either terminal and receive typed messages back on them.

"Now the judge's job is to decide, by carrying out conversations with the entities on the end of the respective terminals, which is which.

"If the computer is very stupid, it will immediately be revealed, and the human will have no difficulty identifying it.

"If it is bright, he may find that he can carry on quite a good conversation with it, though he may ultimately spot that it must be the computer.

"If it is exceptionally bright and has a wide range of knowledge, he may find it impossible to say whether it is the computer he is talking to or the person.

"In Dr Evans' words, "this is one of the most striking differences between man and machine, we really whip them here."

Although Dr Evans clearly believes in the coming of the IBM OS/VS1 environment, he may find that he can carry on quite a good conversation with it, though he may ultimately spot that it must be the computer.

"It is exceptionally bright and has a wide range of knowledge, he may find it impossible to say whether it is the computer he is talking to or the person.

"In this case," Turing argues, "the computer will have passed the test and could for all practical purposes be said to be an intelligent machine."

Turing's test is designed to eliminate preconceptions concerning human versus machine intelligence, as do the following factors devised by Evans. They deal with the components involved.

Data capture ability: an entity is intelligent to the extent that it can extract information from the universe around it. All other things being equal, the better its data capture (sensory) abilities, the more intelligent it is.

Here Dr Evans believes that Man is far ahead of the computer, particularly with regard to the classic anthropomorphic robot.

Artificial sensors are still nowhere near the efficiency range needed, and it would require impractical amounts of computing capability just to handle the control of body motor mechanisms such as balance and walking.

Data storage ability: an entity is intelligent to the extent that it can store information once captured, which can be referred to on future occasions to improve its ability to adjust.

In terms of RAM-type storage, if that indeed is what the brain is mostly composed of, Dr Evans feels that humans are just ahead of computers — maybe just by two or three years.

Processing speed: an entity's intelligence is partly a function of the speed with which its brain/computer can process information. This refers to the

switching speed of its basic units which in the case of most animals are neurones, and in computers, are microtransistors. Without doubt computers are far superior in this domain and are getting more so all the time.

Software flexibility: an entity is intelligent to the extent that its software is rapidly and easily modifiable. This may be one of the most important factors.

Evans added in the interview that it was the ability of an entity to update its own software that mattered, not how easy it was for anyone else to do it. At present, humans excel at this.

Software efficiency: the way in which the system's software has been written will affect the entity's capacity to adjust to novel happenings in its environment. The more efficient the software (the quicker it runs, the less prone to errors or breakdowns, the less "program space" it occupies) the more intelligent the entity.

Given this data structuring capability, it has been clear for some time that the dictionary in effect, constitutes an end-user database management system, suitable for storing, manipulating and retrieving a great variety of information, either online or in batch mode.

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Dr Evans reminds us, however, of the completely novel computer proof of a Euclidean theorem (that the base angles of an isosceles triangle are equal).

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SOFTWARE FILE

Datamanager gets user-defined syntax

A WHOLE new range of applications will fall naturally within the scope of MSP's data dictionary Datamanager with the release of the next version of the software, 2.1.2, in November.

Crucial to the new possibilities is a facility which MSP calls user-defined syntax. This will allow the dictionary to be configured to model almost any complex system of dependencies whether related to DP or not.

At the moment, Datamanager is specifically oriented to the documentation of DP systems. Its basic entities include for example the concepts of system, program, module, database, file, group and record.

This is the main problem which will be eliminated with the introduction of user-defined syntax.

User-defined syntax will consist initially of two facilities: member type synonyms, allowing the user to specify his own names for Datamanager entities; and facility to restrict the range of valid relationships.

The latter facility is important to maintain the intelligibility and consistency of the database. While it would be possible for a program either to "call" or "contain" a module, it would make no sense for a department to "call" an employee in a personnel database.

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Study looks into Genesys, BOS link-up

A JOINT pilot study has been initiated by Applied Research of Cambridge and Genesys, of Ofcom, to determine whether All-in-one software support system BOS could be used to extend the Genesys structural design package.

BOS, which underpins many of ARC building design systems, provides facilities for data structuring, interactive access and graphics.

Integrated with the Loughborough software, it would add user-interaction and online graphics to the capabilities of Genesys.

It could also be used to add Fortran capability to the system, which is currently driven by its own high-level language, Genesys.

It is likely though, as so often happens, that the full potential will be best appreciated by users who may now find the software an attractive way of implementing user-oriented DBMS-like applications.

Local fillip for ICL's S African prospects

"SPL feels that the time is now ripe for the introduction of Ilib to satisfy the increasing number of ICL users."

The new product, he noted, was similar to the Librarian and has three main features.

First, its management reporting function allows the DP manager to monitor program activity. Source programs are kept in a centralised disc file called the Cobol library. The reporting facilities tell the DP manager which programs have been active in terms of changes in any period, and by whom.

Second, the system allows programmers to change programs quickly and safely, and in some cases can slash handling time by up to 40%.

Finally, Ilib is said to offer a foolproof security system since a completed program, once stored, cannot be altered, deleted, or retrieved without knowledge of a special password.

DUE TO PRESSURE

PEOPLE AND EVENTS

Top jobs with new Marconi operation

A NEW operation has been set up by Marconi Avionics in Nailsea, near Bristol, and Chris Frost has been appointed manager at the site. He has been divisional manager for the company since 1968, and before that was chief engineer of the Instrument Systems division. Frost led the team which developed the world's first modular

air data computer.

Ray Reese has taken over Frost's former position as divisional manager of Instrument Systems division at Rochester. He joined Marconi in 1958 as a development engineer. His most recent position was that of coordinator of the company's avionics programmes for the Tornado multi-role aircraft.

Malcolm Budge has become area sales manager for Hallmark Computers. He will be responsible for the City and the South East London area. Previously he was in sales management with Ronco, Vickers and Sankay Sheldon.

Warren Palmer has been appointed general manager of Recognition Equipment, where he will be responsible for all operational activities in the UK. Palmer was UK country manager with Memorex, before forming his own consultancy.

Arnold Buhmann has become general manager of the Americas and the Far East for Ampex International. He is currently manager of the Switzerland and Eastern Europe region at Fribourg. Taking over this position is Gerd Baumhof, currently Ampex International manager in Sweden. The new regional manager for Scandinavia is Willy Bjorklund.

Systek man dies in Fastnet race

AMONG the casualties in the Fastnet Rock race was Roger Watts, 33, director of technical services at Systek, the London-based systems house. He leaves a widow, Hilary, and a five-week-old son, Gerrard.

Watts was crewing on the Fleeting Terla, which is owned and skippered by his friend and former colleague Nell Mooney, when he was swept away during the gale. The yacht made several passes in an effort to pick him up but the rescue bid was unsuccessful.

Watts and Mooney had worked together at Sandersons, the fabric and wallpaper manufacturers, where Watts had divisional systems manager. After leaving the company Watts, who was a specialist on communications and CICS, went freelance and was in Holland for about a year working with IBM and 3M on various software projects. He returned to the UK and joined Systek in July.

A trust fund is being set up by his colleagues and already contributions have been received from friends in Holland. Anyone wishing to have details of the fund should contact Michael La Costa at Systek, HR House, High Road, North Finchley, London, N12 0AZ. Tel: 01-349 2911.



Watts

Paul Murphy has joined Lexidata as corporate controller, with overall responsibility for financial management of the company. He was formerly a certified public accountant with Price Waterhouse.



Murphy

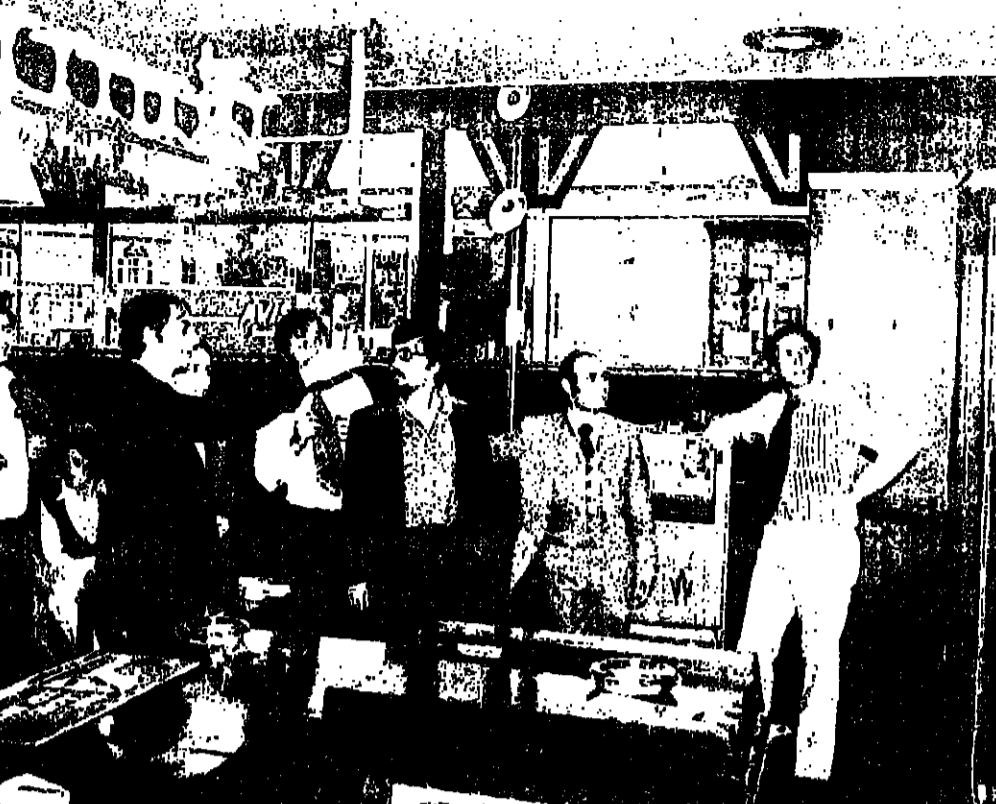
Archie Thomas has been appointed director of the financial systems division of Chubb Cash, succeeding Bill Richardson, who has retired. Thomas had senior positions with Perkin-Elmer and Plessey Communications. He will be based at the Chubb Cash headquarters at Hollingbury, Brighton.

Dave Dye has joined Interlink's sales team, from Bior Electronics in Wokingham, where he was also a salesman.

Richard Hewitt has become sales executive for Safe Computing's 2860 computer bureau. He was formerly a sales executive for Univac.

COMPUTER COURSES

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Managing director

A party of Greeks who came to England to study DP skills with BIS Applied Systems learned more than their 12-week course intended.

During their stay in England they were introduced to the game of darts, at which they quickly became experts and started challenging other consultants. They are seen here practising in the "local" where they first discovered the game. At the end of the course, a knockout competition was held and the winner was presented with a dartboard to take back to Greece.

Andy Timms and Paul Taberner have become part of BIS-Deltak. He joined the company in 1972, and assumed responsibility for marketing and the launching of operations in the UK. He joins the company from CIL where he has gained experience in the sound and vibration field.

Keith Huggett has become a sales engineer for Datatool to cover the south-east region of the UK. He joins the company from CIL where he has gained experience in the sound and vibration field.

Mike Jones has joined Computer Instrumentation as a development engineer in the company's electronics engineering section, to work on computer-based systems development. He was formerly with the Monotype Corp, in the sales divisions, and Cox formerly worked in Eastern Europe in export sales.

Peter Andrews is now sales executive for Westrex in Scotland. He was previously sales executive for Kudc Services.

Peter Flower has become computer services manager of NCB Computer Services. He has been development manager at the Relate Centre since the formation of NCB computer services. He succeeds Martin Ballinger, who has taken the position of company secretary of CMC as commercial manager.

John Lee has become vice-chairman of X3, the American national standards committee. He is to represent the Association of Computing Machinery on X3. He is director of honours and department head at the State University of Blackburg.

DIARY

SEPTEMBER 5-6 IBM CUA Scottish group, Waverley Hotel, Perth. Tel: 01-851 1643.

SEPTEMBER 6 Shape recognition and artificial intelligence. AFTEC and IRIA, Toulouse, France.

SEPTEMBER 17 An afternoon with James Martin, IBM CUA, and Butler Cox Associates, The Grosvenor House Hotel, Park Lane, London.

SEPTEMBER 18 Database systems and information retrieval. BCS Information Retrieval group, Computer Laboratory, Cambridge University, Cambridge.

SEPTEMBER 11 Performance management. IDPM West London and Oxford branch, Teddington House, Hatfield Road, Slough, 18.30.

Bar-coding techniques in stock control. IDPM, Hull Crest Hotel, Ferby High Road, North Ferby, Hull, 19.00.

SEPTEMBER 26 Introduction to microprocessors. IECTE, Leisure Centre, Stevenage, Hertfordshire.

SEPTEMBER 28 Computers in cardiology. IEE Computer Society, Geneva, Switzerland. Contact Computer in Cardiology, Centre de Cardiologie, Hospital Cantonal, 1211 Geneva 4, Switzerland. Tel: 01-212397.

By Judith Morris

Real time data in Europe

THE first European conference on real time data handling and process control, called Real-time Data '79, is to take place in West Berlin from October 23-25. Organised by Purdue University, the Esonic Committee and the European Camac association, the event is sponsored by many European bodies including the CEC, EC, ISO and the Ministry for Research and Technology for Germany.

The main theme of the conference is the standardisation of electronic hardware and software as applied to real time data handling and process control. Major topics will include review of hardware and software standards and their commercial aspects, applications in industry and medicine, and systems architecture.

For further information contact Real-time Data '79, Congress Organisation Company, Kongress Zentrale, John-Foster-Dulles Allee 10, D-1000 Berlin 21.

CONFERENCES

THE implications of Viewdata and Teletext will be discussed at the Professional Viewdata Exhibition on November 7-8 at the West Centre Hotel, Lillie Road, London. The exhibition is aimed at those who will be involved in operating and using the systems. It is sponsored by the magazine Viewdata and TV User, and has the support of the Association of Viewdata Information Providers, the Post Office and the Department of Industry.

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INTRODUCTION TO PASCAL

PART 10

Decision to change

THIS series has attempted to describe the elements of Pascal and give some insight into how it is used, that is, how Pascal programmers think. Interesting though it may be, it will have been of no more use than a series of Noddy stories if it has not stimulated you to stop and think seriously for a few minutes. "Should I use Pascal?" A better way of phrasing the question is to break it into two parts: should I change my language and, if so, should I change to Pascal?

Should I change languages?

There are few computer linguists these days and few firms that encourage them. With the major languages (Cobol, Fortran or Basic) the situation is even worse in that most programmers are steeped in a particular dialect of their chosen language. For instance, one seldom sees advertisements for Cobol programmers per se. It is always IBM 370 Cobol or ICL 1900 Cobol, and many an unsuspecting novice has been confused by the vagueness of Manufacturer X's own special Extended Basic. Thus an individual is likely to be, by force of circumstances, satisfied with his language and unwilling to undergo the trauma of learning the ins and outs of a new one.

This is short-sighted and introspective thinking. It took a lot of courage in 1970 to switch driving habits from a horse-drawn carriage to a model T Ford. Can we afford to stare progress in the face and refuse to acknowledge that it is progress?

Cobol and Fortran were designed when computing was in its infancy (circa 1960) and surely we must believe that improvements worth noting have been made since then. After all, hardly anyone these days would willingly fly across the Atlantic in the once popular Comet.

If these considerations should weigh with an individual, there is even more cause for a large organisation to be aware of and to be open to new trends. There are deficiencies in the 1960 languages. To be frank, they are not even adequate any more. Therefore, why stick with a language merely for loyalty's sake, or because "everyone else uses it"? "Because it is too expensive to change," comes back the answer, loud and clear. Before answering that one, let us look at one more question of principle.

Is it worth it?

What do I stand to gain by changing to one of the newer languages? There is no sense in switching to a work-horse that is equally old and decrepit! First of all, you will be a leader in the field, ahead of the times and able, to some extent, to put your stamp on the development of the trend. This kind of advantage is hidden, though what about practical, money-making advantages?

I hope that this series has shown that a new language like Pascal has two great differences over its forebears. It emphasises security — no silly mistakes, no undetected errors — and so, up goes programmer productivity. This has been made startlingly clear in classes at universities where the student programming output has increased in both quantity and quality.

Pascal also places great reliance on a single, machine-independent and international standard language. It is ironic that one of the reasons for sticking to Fortran or Cobol is usually that "it is standard". Any programmer who has used more than one compiler in his life knows this to be a complete fallacy.

But Pascal goes further than just a language standard — there is a common sublanguage among programmers that enables programs to be instantly readable. I have read large system programs written at a variety of installations in Switzerland, Ireland, Minnesota, Poland, Tasmania, all with the barest comments and no documentation whatsoever.

Think of it, no more dialects, in-house rules to avoid them, or maintenance problems when programmers leave. The new programmers will be productive without extensive "immigration" courses.

But what will it cost?

Sure, we can dream dreams, but there are real live

Needs of European users

DRAMATIC differences in attitudes towards hardware maintenance between the UK and West Germany are revealed in a study* published by Input Europe on the maintenance requirements of computer users in Europe between now and 1983.

It is based on the responses of 453 users in the UK, France, West Germany and Holland on an Input questionnaire.

Asked about their attitude towards their kit being serviced by a third party maintenance company instead of by the hardware vendor, about 85% of West German respondents said that they had a definite preference for the vendor rather than a third party. In contrast only 41% of UK users insisted that the vendor maintain their kit.

Big differences in attitudes to response times and repair times were also revealed. Users of mainframes in both countries expected more or less equally fast service, but for terminals and plug compatible peripherals users in West Germany mainly expected maintenance engineers to get down and finish the job in about half the time demanded on average by UK users.

The different attitudes to third party service could be partly explained by the responses to

considerations to changing a language. The first is usually equipment, but in the case of Pascal, compilers are now available for nearly all machines, and an increasing number of manufacturers support it and compilers are also frequently obtainable at low cost from universities, research establishments or individuals.

The second, and astronomically larger, cost is that of retraining staff. So let's be realistic. No manager is going to walk into work on Monday and say, "Right chaps, we'll all write Pascal from today." There is, however, a way of promoting progress effortlessly. Soon, if not already, all university graduates will be fluent in Pascal.

A company can take advantage of this open situation by letting a keen employee obtain a Pascal compiler and write the odd stand-alone program. Perhaps he or she could give an in-house course. Most of all, the firm could join the Pascal Users Group and keep abreast of what's happening through the quarterly Pascal News.

A warning

At this point, I must voice a warning against changing Pascal into something else without changing its name. If you decided to put your favourite feature into Pascal, please call the language something else.

The US Department of Defence has been much in the news over its attempt to find a common language for defence projects. Pascal was chosen only as the base for the language, which is growing rapidly, and now goes under the name of Ada, after the first programmer, Lady Ada Augusta Byron Lovelace, who was a friend of Babbage. There is no harm in this, since the principles of Pascal are applicable under any name. On the other hand, one wonders why they need to change Pascal at all!

Why Pascal?

So, if a language is on the cards, why change to Pascal? The answer is that no other post-1970 language can remotely touch its popularity, universality and stability. Take popularity. In one edition of the small computer journal BYTE, there were no fewer than six articles on Pascal ranging from the daring "Pascal versus Cobol" to the eulogistic "In Praise of Pascal". Other magazines have followed suit and Pascal is now being offered in hard-wired form on microcomputers.

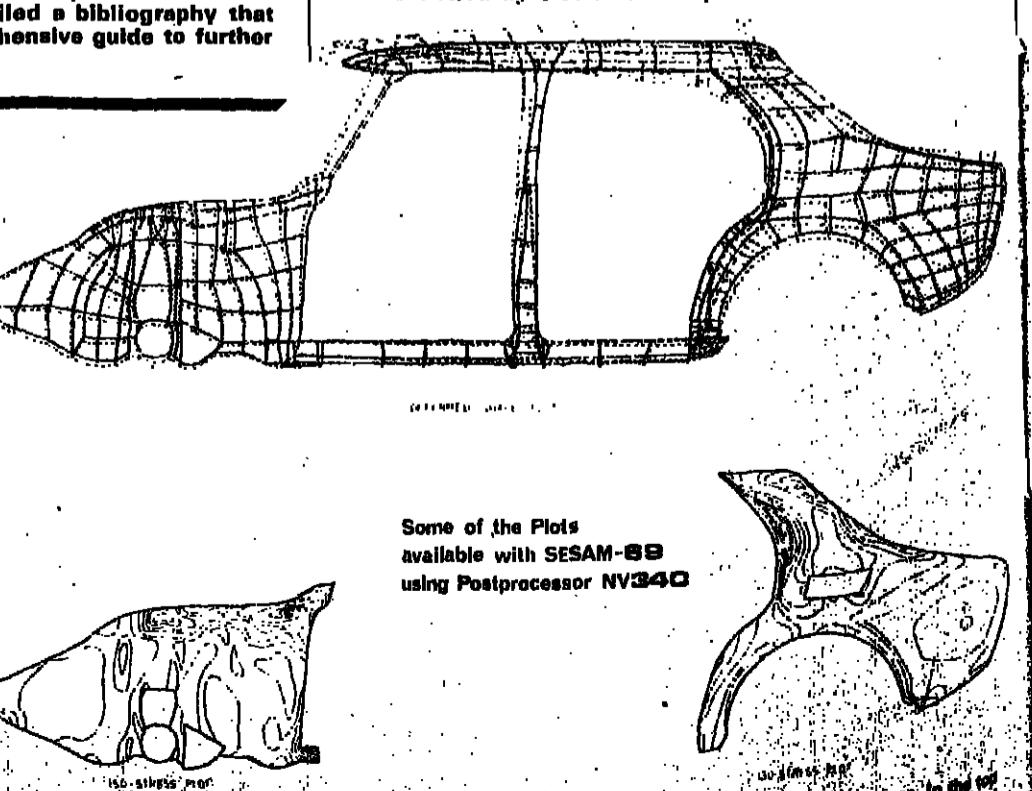
In this way, Pascal is a real challenge to the small computer language, Basic. But Pascal is non-sectarian and unchangeable (provided the "change me, change my name" rule is adhered to, and it seems to be). It filled such a wide need when it came out in 1972 that there is unlikely to be another like it. Certainly, in the past seven years the competition has been entirely academic. In short, a change to Pascal will have a permanence about it — for at least as long a run as Cobol or Fortran have enjoyed.

In summary

Pascal is not only a language with more than the average number of good features; it also encompasses a way of life. Top-down design, communication through parameters, an abhorrence of abbreviations, are hall marks of the Pascal programmer's trade. It is rarely that one sees a bad Pascal program.

It seems as if Pascal arrived on the scene just as programming came of age, to become the lifeline of thousands and the hobby of twice as many. Programming in Pascal is just that much more enjoyable, productive and secure. Switch now — there is not going to be another language like it for a long, long time!

NEXT WEEK: To conclude this introductory series on Pascal, Professor David Barron, head of computer studies at Southampton University, has compiled a bibliography that provides the student with a comprehensive guide to further study of the language.



The illustrations show three of the plots taken of the Saab-99 car body during the design process. In the top illustration, the load-bearing elements of the car body are shown at rest, and, dotted, under load to indicate the extreme stresses. The other two plots show isometric lines which indicate the deformation of the side member of the engine compartment, and the rear side panel.

Speeding the design of structures

Whether it is a Saab car or a giant North Sea oil rig that you want to design, mathematical simulation can provide a speedy and cost-effective solution, and Computus of Norway believes it leads the world in what it calls super element technique. TIM PALMER reports from Oslo.

THE traditional method of testing structures which have to withstand a wide variety of forces and environmental hazards has been to build a laboratory model and examine how it behaves in simulated conditions.

Computus is investing an annual £100,000 in development of numerical tools and Sesam-69 has been applied to design of North Sea oil structures, nuclear power plants and automobile design.

The concrete structures used in the North Sea cost £1,000 million each, and in one application, where Sesam-69 was used to analyse the mix of materials in such a structure for ideal strength under all the adverse conditions which can occur in the North Sea, 720,000 equations had to be solved.

It was necessary to examine 33 different kinds of loading condition, and solutions took up 350,000 pages which were output on microfilm, and 450 hours of computer time over six months was required on the 110.

In the automobile field, Sesam-69 has been used by West German car manufacturers, by Saab and Volvo, UK manufacturers, Renault in France and Fiat, Lancia and Alfa Romeo. Until 1969 the technique was little more than a mathematician's toy, since the number of equations which needed to be solved for even fairly simple structures was enormous.

The availability of large computers made it possible to apply the technique to practical problems.

The Structural Engineering division of Norwegian consultancy Computus, part of Det Norske Veritas-shipping and insurance group, claims to have pioneered the technique and to have taken it further than any of its US competitors.

The advantages of this kind of structural analysis are threefold, according to Computus. It significantly reduces the time needed for designing the structure; it is applicable to almost any kind of structure, however complex; and the cost advantages are increasing all the time as laboratory costs go up and computing costs go down.

The work is actually done on a Univac 1110, shortly to be replaced by an 1100/80, at the Fjerndata service bureau, which is 40% owned by Det Norske

Itel holds two trump cards in its fight for survival

A major restructuring is under way at Itel, not only in the mix of businesses in which the company is involved but also in the product line of computers offered. TIM PALMER reviews the current product line-up and suggests that whatever the ultimate fate of Itel itself, Hitachi, National Semiconductor and IPL Systems all have a vital interest in ensuring continuity of service to Itel machines.

cago, Los Angeles, Dallas and Atlanta. European marketing is planned for later this year or early in 1980.

Latest news on Itel's financial affairs is that the company has reported a loss of over \$60 million for the second quarter. Lay-offs are now over 500, including over 200 involved in the design, development and manufacture of computers. The Hawk development project to produce a new small processor has been scrapped, and Itel is seeking a tenant for the land in Rancho Bernardo where it had planned to establish a factory to build the machine.

Despite this, Itel's newly streamlined plug-compatible business still does not seem to be complete, and Itel is now understood to be working out reductions in its operating costs considerably in excess of the \$25 million it originally set as a target.

The joint development project with Hitachi for a new machine to be introduced in 1981 is likely to continue, however.

Following the major deal with Hillman of Pittsburgh to raise money in the residual values of \$100 million of transport and computer assets on lease (C.W.

May 31), two contracts for rail cars have been discontinued. Involved were a total of 6,150 goods wagons and 850 flatbed trucks worth a total of \$280 million.

The restructuring of the company still does not seem to be complete, and Itel is now understood to be working out reductions in its operating costs considerably in excess of the \$25 million it originally set as a target.

Despite this, Itel's newly streamlined plug-compatible business does look viable, and if the company can soldier on until IBM announces the H-series, when many of the uncertainties now assailing users will be resolved, its relationship with Hitachi could enable Itel to continue to be a thorn in the side of IBM.

Following the major deal with Hillman of Pittsburgh to raise money in the residual values of \$100 million of transport and computer assets on lease to customers continues.

COMPUTER WEEKLY is holding its Annual Ball on Friday, October 12 at the Royal Lancaster

Computer Weekly is holding its fourth annual Ball. Last year nearly 700 people attended what has come to be regarded as the computer industry's big night out.

This year the Ball will again be held under the patronage of the British Computer

Society. And proceeds will once more be devoted to a deserving cause associated with the computer industry.

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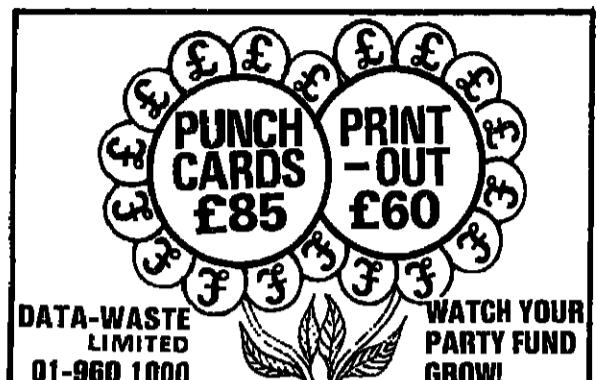
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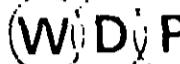
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Computers present special problems of fire protection, and serious hazards also arise from the electrical supply wiring, usually in the floor and ceiling voids. ROB STEWARD, of Bowcom Electronics, explains why it is vital to be able to detect and

attack a fire in a computer suite as soon as it occurs. He regards fire detection and extinguishing systems as fundamental to the protection of computers, and says that all fire detection systems should be approved by the insurers.

How to prevent fire in the computer room

IN any commercial organisation serious damage to the main computer system, or destruction of the recorded data, can result in an ultimate financial loss many times the initial capital investment in the installation, so computers present a high capital value concentrated in a relatively small space.

Although this is well understood by most computer users, they are sometimes surprised at the intrinsic vulnerability of the computer system to fire risks, and at the insistence of insurers on very comprehensive fire protection arrangements.

Computers also present special problems of fire protection, two of which are of major importance: their high sensitivity to abnormal conditions of temperature and humidity, small variations in which can have serious consequences; and the common use of PVC as insulation within the computer suite. At comparatively low temperatures PVC gives off hydrogen chloride, which is not only toxic but corrosive, and a small quantity can cause extensive damage to printed-circuit boards and relay contacts.

A similar serious hazard arises from electrical supply wiring, usually located in the floor and ceiling voids. Local heating of PVC insulated cable can soften insulation between conductors, allowing arcing to occur with consequent gross overloading of certain sections of cable. The effect then becomes cumulative, rapidly building up the temperature until the PVC insulation starts to burn, giving off highly toxic and corrosive fumes.

Because of these considerations it is vital to be able to detect and attack a fire in a computer suite as soon as it occurs. Fire detection and extinguishing systems are therefore fundamental to the protection of computers and all fire detection systems should be approved by the insurers for the purpose for which they are installed.

An indicator panel associated with the fire detection systems should be installed in a readily visible position in the computer area. Just as important, however, is the need to reduce the risk of an outbreak of fire to the absolute minimum. This entails the highest standards of "good housekeeping" and of general fire safety practice within the computer suite.

Fires also occur in the electronic hardware of the computer itself, the peripherals and associated equipment. Unlike older forms of electronics in which vulnerable components were chassis mounted, modern electronic systems usually consist of rows of combustible printed circuit boards mounted vertically in frames, and the free passage of air deliberately allowed for cooling can become free passage of flames or incandescent gases if fire develops.

Line printers are the most common type of data output terminal in the computer suite, and the large quantities of paper handled by these machines

obviously exacerbates the fire risk while punched paper tape, used in many computer systems as the data input medium, must be one of the most easily ignited solid materials in common office use.

The plastic substrate of magnetic recording tape, normally held in very large quantities in the computer suite, is also highly combustible. Reels of this tape stored in metal containers present a comparatively small fire risk and may even survive a fire with recorded data still retrievable; but it is generally more convenient and certainly less expensive to store the tape in transparent plastic containers. These are also considerably lighter than their metal counterparts and, where very large volumes of tape-recorded data are housed on upper floors, plastic containers are sometimes provided in order to avoid overloading floor structures. But plastic containers burn, and although they offer various advantages, they do nothing to reduce the fire risk.

Few premises have satisfactory tape storage. In some the tapes are only separated from the computers by token glass screening; in others the tapes are stored in a separate room, but they may be too small and the tapes may overflow into the computer area.

All tapes except those actually being used should be stored in an adequately-sized room, with enough space to allow for future expansion of operations. The room should be separated from the computer area by fire-resistant construction.

Thus tapes which are critical to the computer programs should be kept in a fire-resistant storage cabinet complying with the requirements of Appendix II of the CEA Standing Technical Committee's recommendations for the protection of computer installations against fire. As an added precaution, duplicates of these master tapes should be made and stored elsewhere (preferably in another building). This will ensure the minimum disruption of business should there be a fire in the tape store.

It follows from these arguments that adequate fire protection

should be regarded as part of the normal capital investment in the computer installation. Because of the exceptional economic risk associated with the computer suite it is naturally assumed that the precautions taken within the suite will be a great deal more elaborate than those in surrounding office areas, where it may be sufficient to ensure the safety of personnel, with only elementary protection of the material contents.

The first essential external fire precaution of the computer suite is, therefore, prevention of fire spreading into the suite from the surrounding area. This implies careful siting in order to provide escape routes for computer staff together with isolation of the suite from the surrounding area by means of fireproof walls, partitions and doors.

Swift and efficient handling of waste materials is fundamental to "good housekeeping". If not cleared away regularly, accumulations of waste form an ideal place for fires to start.

The amount of paper used in computing varies enormously

from firm to firm, and can be as much as one-and-a-half tonnes daily. A certain amount of this will be wasted during the process, and ancillary processes such as cutting, chopping and punching will produce more waste. There may also be spoiled tapes.

All waste material should be kept in metal self-closing bins, which should be emptied at regular intervals — say twice daily. Where throughput is such that there is a large amount of reject paper and other waste materials, a compactor and baling machine can help reduce the fire risk. The important point is to reduce the amount of combustible materials in the computer suite to the minimum.

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As well as the principal danger of a fire in the paper store spreading to or affecting the

computer, it must also be remembered that the destruction of the paper store by fire can cause a serious loss of throughput.

A firm which services a large number of customers may have in store several hundred different types of stationery in large enough quantities to deal with several million lines of printed output a week. The problem can be aggravated by the tendency to stockpile several months' supply of paper to overcome delays in deliveries. The quantity of paper in such

cases presents a major hazard. Paper and other materials should be kept to a minimum within the computer suite itself. The store room for larger quantities should have sufficient space for the proposed quantity and should be separated by fire-resistant walls, doors and floors from the computer suite.

All personnel should be fully instructed in the action to be taken in the event of a fire. In a firm using computers there may well be a high rate of staff turnover, but every effort must be made to ensure that staff know the special emergency fire procedure for the computer suite. This should be worked out in advance to cover every foreseeable fire situation and should be clearly displayed in notice form as well as taught to all staff, including cleaners, who

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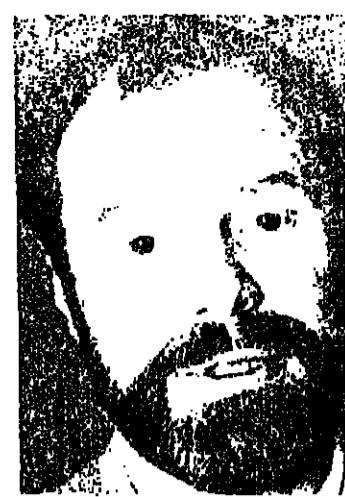
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How word processing could help councils to beat cuts crisis

By Frank Jones

THE UK Public Sector is a vitally important market for our office systems firms to capture if they are to prosper, but spending cuts, red tape, and union restrictions are all obstructing the automation of local government.

Frank Jones, a management services officer with Bradford Metropolitan Council and a pioneer in the introduction of large shared-logic word processors to the Public Sector, describes how councillors are being caught between the devil of union militancy and the deep blue sea of government cut-backs.

The trade unions are mustering their members not to prevent the introduction of office automation, but certainly to make it difficult, less cost effective and protracted.

One could argue, perhaps justifiably, it was their job to protect their members and they were only exercising their prerogative.

The cataclysmic results of the difficulties they could create by irresponsible action, however, can clearly be demonstrated by the £900 million grant with future possible reductions if higher pay is awarded to workers.

The intention is clear: reduce staff, increase efficiency and spend less money for the same or an improved service.

It was hoped large scale public and private sector investment in office automation would attract investment in manufacture and software development within the UK as at least a proportion of the sales for investors would then be local. However, a number of factors are contriving to abort our salvation.

But trade unions are only one contributory factor to an aborted future.

The government, gifted though it may be in stimulating confidence for our economic salvation by trying to reduce not expenditure.

The intention to reduce by, say, 3.5% of the £80 million means that approximately £3 million will need to be trimmed off the budget this year.

If we took a notional cost of £3,000 per employee, the council would have to reduce by 1,000 jobs to achieve their saving.

Any guesses what the trade union reaction would be of, say, Nalgo, which has 4,000 members in Bradford, was asked to reduce the labour force by 25% overnight with no increased benefits to members?

So, as a politician seeking re-election next time, these are your options: increase rates and probably lose the election; reduce dramatically staff and services and probably lose the next election; reduce staff dramatically and by introducing office automation maintain services but anger the unions by the speed of change; or, reduce your capital expenditure, injure long term efficiency but hope to stay in power to retrieve the situation.

It is a brave man who chooses anything other than the latter of these courses. So with a declining capital expenditure and a growing proportion of revenue expenditure what happens?

The current pattern of 83% spent on wages and running expenses and 17% spent in capital expenditure — with a 30% reduction — in little more than five years would leave no capital expenditure and committed revenue to personnel.

A far fetched scenario? The microprocessor has been with us since 1971. How many office products are driven by a UK microprocessor? None. The only microprocessor mode in the UK is the Ferranti F100L used mainly for defence projects.

How many companies would even contemplate investing in an office automation industry ... where there is a positive disincentive to politicians and managers?

evaluates the post and, because the manager has less staff to manage and they are less skilled, he is down-graded.

The fact he was a genius and redesigned the organisation to meet his employer's objectives is only a personal factor and not attributable to the post. Would you recommend office automation in these circumstances as a local authority manager?

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How many companies would even contemplate investing in an office automation industry in the UK where there is a positive disincentive to politicians and managers?

So how can Mrs Thatcher's government reverse the trend? Attach strings to all reductions such as: reductions must be by increased efficiency, by reductions in unnecessary administrative staff and sales of administrative buildings to meet reductions will result in further cut backs.

A COMPUTER WEEKLY HANDBOOK BASIC FILE DESIGN BY OWEN HANSON

This book provides a brief but authoritative review of the most frequently used file organisation techniques, and of related subjects such as data security and software aids.

The file designer is shown how to choose between the available techniques on the basis of known or forecast information rather than rule-of-thumb, and methods of ensuring that the correct choice has been made are given.

New work carried out by the systems analysis division of the City University Business School, London, is linked with previously published information to provide methods of optimising the performance of sequential, direct and indexed files. Marked improvements can be achieved, particularly with direct files, which are worthy of wider use than at present.

Students of data processing, lecturers and practitioners should all find the book invaluable, particularly because it provides a great deal of information and many illustrations in a very compact format.

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IPC Electrical/Electronic Press Ltd.
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London SE1 9LU

PRODUCT NOTES

General purpose analyser from Hewlett Packard

A GENERAL purpose analyser is now available from Hewlett Packard, for the design of digital systems. Called Model 1610B, it is a logic state, keyboard controlled analyser, and features include multi-phased, qualified clocks for

analysis of multiplexed buses. The clocking capability introduces three data capture modes, 32 bits, 16/10 bits and 16/8/8 bits. In addition, the 1610B can also be set to display the contents of the analyser memory even when all

the trigger conditions are not set or a system clock fails. Data can be strobed into the 1610B with either or both edges of each of the three clocks. The slave clock strobes data into holding registers and the master clock strobes all data into holding registers.

Another function is a memory retrieval mode, which gives access to the contents of the analyser memory even if a trace point has been generated as in the case of a system clock failure.

For hard copy record of tests and formats and trace specifications, the HP-1610B includes an output that is compatible with the company's 9895A and 9896A thermal printers. Both produce page-width prints and simple plots at 240 lines per minute.

Hewlett Packard Limited (CW), King Street Lane, Winsor, Wokingham, Berkshire. Tel: 0734 784771.

Low cost 225 chps printer

COMPRINT's Model 912 is designed to meet the need for low cost printers in small business systems, home computers and message networks. The unit writes 80 column lines at a speed of 225 chps. The print medium is a unique 9 x 12 pinthead matrix.

Computers Printers Intern-

ational (CW), 280 Polaris Street, Mountain View, California, 94043 USA.

That generates overlapping dots to create more fully formed characters. A full six month warranty is offered on the Model 912, and the unit is automatically tested and packed in a unique 9 x 12 pinhead matrix.

It accepts binders of up to 44cm long and 8cm thick, suitable for reports, manuals, brochures and other matter.

The 912 is a unique 9 x 12 pinhead matrix.

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 Scotland & E. Scotland
 MACROLOGIC
 (recruitment consultants)
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Join our Programming Team preparing for the introduction of

MAINFRAME
 using

CICS VS DL1 DOS/VS
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100 TERMINALS
 ON LINE REAL TIME

We are currently seeking a

at a starting salary of

The successful candidate will have an extensive knowledge of IBM COBOL with CICS and DL1 being a pre-requisite. He will run a team of Development Programmers on

MAJOR NEW SYSTEMS

With a natural ability to lead, he will also have experience of the application of high quality standards and structured programming techniques.

We are also seeking

ANALYST/PROGRAMMERS

UP TO £7,000 p.a.

With a COBOL background, Analyst/Programmers will use the latest on line programming development techniques through screen based systems. A knowledge of CICS VS plus DL1 will be a distinct advantage.

There are excellent fringe benefits including:

A Concessionary Car Purchase Scheme
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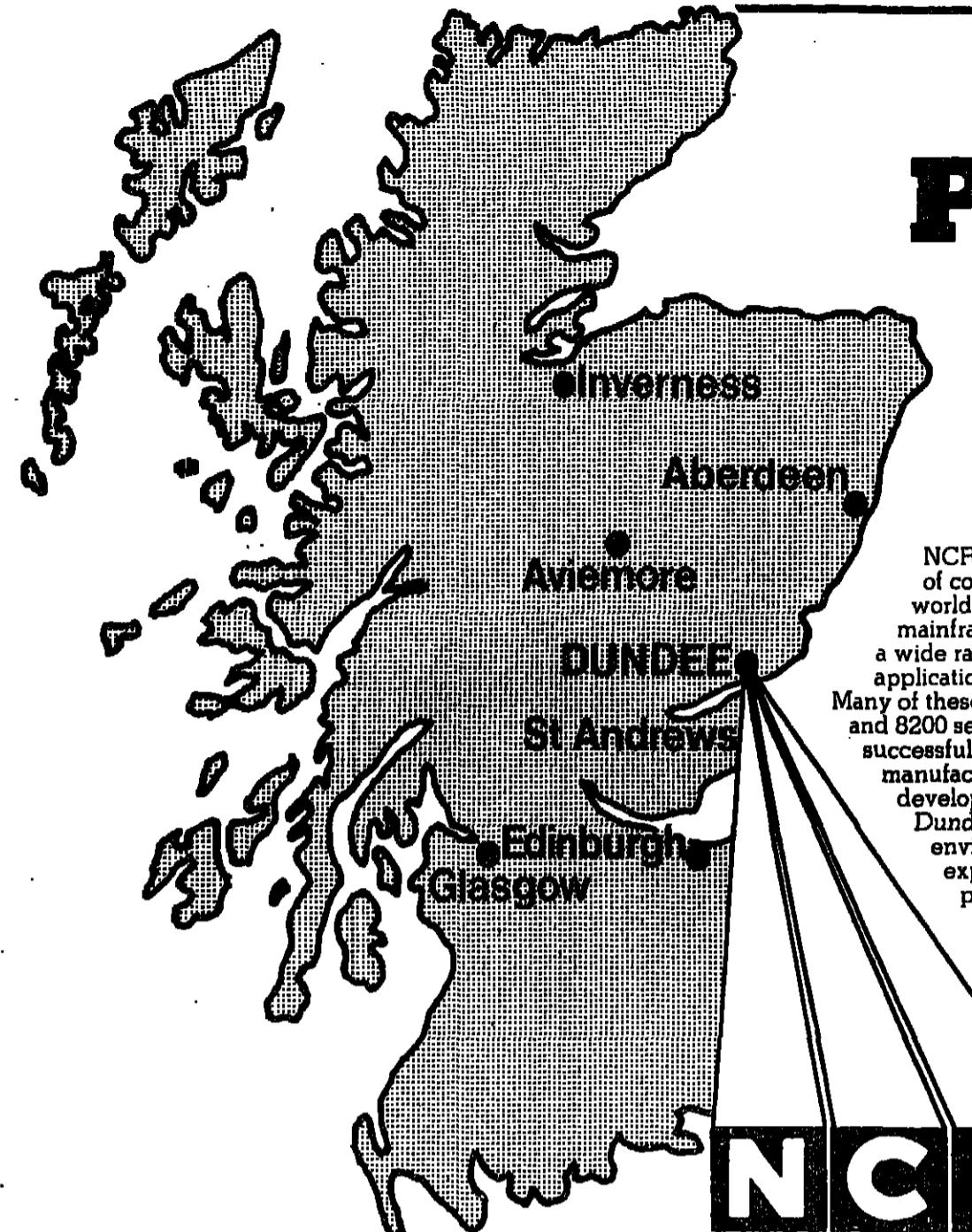
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Analyst/Programmers

c. £6,000

Analysts

c. £7,000

NCR is the second largest manufacturer of computers and related products in the world today. Our product range covers mainframe, mini and micro computers and a wide range of terminal products for most application areas. Many of these products, including the Criterion and 8200 series computers and our very successful banking terminals, are manufactured at our engineering and development unit on the outskirts of Dundee. It is in this sophisticated environment that we now need experienced analysts and analyst programmers (COBOL) for our growing Management Information Services Department. The company is committed to a high level of systems development in the 1980's with new systems covering all areas of the company's

operations. Many of these systems involve the use of on-line/real time and database techniques.

For successful candidates there will be an excellent negotiable salary plus paid overtime and full pension and life assurance benefits. We also offer a first-class relocation package to Dundee, a fine city situated in the heart of some of the best leisure facilities in the UK — golf, skiing, sailing, climbing are just some of the sports available locally. Quality housing is available, to rent or buy, in Dundee or the surrounding countryside including the coastal resorts of Carnoustie and St. Andrews. The NCR site itself offers excellent staff, social and sporting facilities.

If you are interested or would like further information please telephone Doug Muir or John Hussack on 0382 60151, reversing the charge. Or apply with full career and personal details to:

Mr. I. Hume,
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Freepost, Dundee, DD1 9XW.

HOMEFRIDE, TYNEBRAND,
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DATABASE ANALYST

Croydon

c. £9000 p.a.

As a result of a significant Board decision we are now developing a totally new systems strategy, involving system reviews for each Spillers operating group and a total commitment to corporate system development.

This strategy involves the extensive use of databases and the associated techniques and technology to provide effective application systems.

A Data Administration function has been established to support these developments and we need a Database Analyst to be involved in

- the development of Company database strategy
- application project team support
- database technical support

Your responsibilities will include:

- providing internal consultancy in the development of database systems including responsibilities for logical and physical designs
- being actively involved in the generation of database standards and procedures to provide a professional and disciplined approach to database development
- participating in the introduction and development of a Data Dictionary to support both data analysis and application development

Spillers
Management Services

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DEPARTMENT
SYSTEMS
PROGRAMMER

Salary scale £5641-
£5981 inclusive

A vacancy arises in a busy Local Authority installation. IBM 370/138 running under DOS/VS, POWER/VS and related software. BAL experience is necessary. Main development involves terminals and teletypes running under CICS/VS.

For further information about the post ring Mr. A. Ramsay Tel: 01-510 728 ext. 3126. Applications to Mr. F. Pease, Data Processing Manager, Computer Suite, Civic Centre, Hampton Road, Hounslow TW3 4DN. Closing date: 14 September, 1979.

ROYAL COLLEGE OF PHYSICIANS
REGENT'S PARK, LONDON

PROGRAMMER-BASIC

circa £5,000

The College is about to install a computer system for examinations administration and related functions. The system will be based on a PDP 11/34 configuration with terminals and word processing facilities.

Applications are invited from BASIC programmers interested in working with a small team in a College environment.

Working hours could be adjusted to suit applicants with domestic commitments.

Applications, with full details of experience and qualifications, should be sent to The Deputy Secretary, Royal College of Physicians, St. Andrew's Place, Regents Park, London NW1 4LE.

Derby Lonsdale College
of Higher Education

Programmer/ Analyst

(Full-time or
Part-time)

Up to £4,300
(including three-shift allowance)

The University's rapidly expanding Data Centre which has recently upgraded to a Univac 1100/80 system, has a requirement for a Senior Computer Operator who, together with the Shift Leader, will supervise two other operators on one of the three shifts.

The University's policy of being at the forefront of hardware and software technology makes this an interesting and desirable position in which to work.

We can offer:

- Career development opportunities
- Training, including day release for computer studies
- Good holidays — 4 weeks plus a week at Christmas and Easter
- Sports/social facilities

Applications may be obtained from the Staffing Officer, Derby Lonsdale College of Higher Education, Kedleston Road, Derby DE3 1QB (Telephone Derby 47181) to whom completed forms should be returned by 17th September, 1979.

THE OPEN UNIVERSITY
DATA PROCESSING DIVISION

SENIOR COMPUTER OPERATOR

Up to £4,300

(including three-shift allowance)

The University's rapidly expanding Data Centre which has recently upgraded to a Univac 1100/80 system, has a requirement for a Senior Computer Operator who, together with the Shift Leader, will supervise two other operators on one of the three shifts.

The University's policy of being at the forefront of hardware and software technology makes this an interesting and desirable position in which to work.

We can offer:

- Career development opportunities
- Training, including day release for computer studies
- Good holidays — 4 weeks plus a week at Christmas and Easter
- Sports/social facilities

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Sales Remuneration includes basic salary, commission and guarantees to back this commitment. These are quota earnings. When you beat target you will earn much more!

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11/19/79

Royal Observatory, Edinburgh

Software Specialists

Scientific Officers/
Higher Scientific Officers

There are vacancies for software specialists at the Royal Observatory, Edinburgh

The Observatory is responsible for three major national facilities - the 1.2m Schmidt telescope in Australia, the COSMOS high-speed measuring machine at Edinburgh and the 3.8m Infrared telescope in Hawaii. All facilities employ software specialists for developing control system software (for controlling telescopes, telescope instrumentation and high-speed measuring machine) and for developing scientific applications software for the reduction and analysis of data. Initially, the successful applicants will be posted to the UK Infrared Telescope Unit. This 3.8m telescope is the largest of its kind in the world. The telescope and the ancillary instrumentation are controlled by two PDP 11/70 computers. The successful applicants will be responsible for the support and development of the telescope operating system, written in assembler, and the instrument control systems, written in higher level languages.

Applicants for these posts should have experience in one or more of the following fields: assembler language programming, FORTRAN, real-time software, and scientific applications packages or microprocessor systems. A good degree in Mathematics, the Physical Sciences or Computer Science is essential.

Because the telescope is situated at high altitude a special medical examination is given to all members of the UKIRT operating team on Hawaii. Success in that examination will be a prerequisite for appointment to this post.

Salary will be in the range £4218-£6211 (under review) depending upon age and experience. Non-contributory superannuation scheme.

 Application forms and further details from Personnel Officer, Royal Observatory, Blackford Hill, Edinburgh, EH9 3JH. Tel: 031-687 3321. CLOSING DATE: 21 SEPTEMBER, 1979.

Public Health Laboratory Service

Team Leader

£7506-£9030 + £354 London Weighting
and from 1 January 1980
£8387-£10304 + £354 London Weighting

The Public Health Laboratory Service is looking for a Team Leader to manage the day-to-day running of the potential future application of data processing to medical, scientific and administrative problems now has an opportunity for a Team Leader to control and develop our newly formed Data Processing Unit.

We provide a microbiological service in some 50 laboratories throughout England and Wales and am also responsible for a centralised control and management unit in Porton Down. With these responsibilities come a wide range of duties and resources and the development of the unit will cover the full range of testing, systems and financial control.

You will be based with our Headquarters team in pleasant offices in Colindale, NW9, though your work with senior medical and scientific staff will also involve travel throughout the country. This is a high-level post offering considerable challenge and responsibility for extensive experience in the control of an important new project.

Notably you will need to be well qualified technically and possess the managerial and personal qualities necessary to make this venture a success.

Further details of the post may be obtained from Dr. R. A. Bassett, Public Health Laboratory Service, 61 Colindale Avenue, London NW9 5EO (Telephone: 01-200 1859).

To whom an application together with the names and addresses of two referees should be submitted by 28th September, 1979.



MERSEYSIDE COUNTY COUNCIL

TECHNICIAN
(COMPUTER MAINTENANCE)
 (£3,585-£4,633 p.a.)

The person appointed will be a member of a team of four working under the direction of a Senior Technician. He/she will be involved in installation, operation and maintenance of various computers, closed circuit television cameras/monitors and ancillary electronic equipment.

The post involves shift work, providing coverage from 0700 to 1900 hours, Monday to Friday (two-shift system), for which a shift allowance of 12½% is payable.

Applicants should have experience in digital techniques and/or video systems and preferably qualified to O.N.C./City and Guilds in Electronics.

Application forms, returnable by 17th September, 1979, from the County Engineer, 4th Floor, Steers House, Canning Place, Liverpool L1 8JW. (Tel: 051-227 5234, ext. 2512).

Please quote ref. no. TR/540 in all correspondence.

ANALYST/PROGRAMMER	to £6000
2 yrs analysis financial/commercial exp. Northampton Ref: B/104	
ANALYST/PROGRAMMER	to £8000
Graduate Scientific applications some sales. Cambridge Ref: B/104	
SYSTEMS ANALYST	£6000
2 yrs analysis financial/commercial exp. Northampton Ref: B/90	
SENIOR ANALYST	to £8600
4 yrs commercial analysis exp. Peterborough Ref: B/90A	
ANALYST	to £7400
2/3 yrs commercial exp. Peterborough Ref: B/90B	
TEAM LEADER	to £10500
Extensive commercial project exp. Peterborough Ref: B/90C	
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DOS/VS to implement new systems. Peterborough Ref: B/90D	
OPERATOR	to £4500 + O/T
DOS/VS POWER. 18 millis. exp. 170, Northampton Ref: B/102	
Telephone or write to: X-Calibur Duke House, 2 Duke Street, Bedford MK40 3JR 0234-857774/6632	

X-Calibur
CONTRACT SERVICES

Application forms and further details from Personnel Officer, Royal Observatory, Blackford Hill, Edinburgh, EH9 3JH. Tel: 031-687 3321. CLOSING DATE: 21 SEPTEMBER, 1979.

PROGRAMMERS
(Starting up to £5,600)

We need Programmers with at least one or two years' experience to implement the systems planned for our new ICL 2950 installation.

Cobol knowledge would be useful, but not essential. We are prepared to retrain experienced people.

You will find the immediate tasks very rewarding and promotion opportunities outstanding.

If you are interested in these vacancies, either write to:

Mr. L. T. Richards, Halfords Limited
Icknield Street Drive, Washford West
Redditch, Worcs. B98 0DE

or just call in to see us for an informal discussion (no appointment needed) at either of the following:

Halfords, Redditch
Tuesday, 4th September
from 5 p.m.-8 p.m.

Holiday Inn, Birmingham
Thursday, 6th September
5 p.m.-9 p.m.

HALFORDS
A BURMAN GROUP COMPANY

DIRECTOR
EUROPEAN
SALES

Dublin

Five Figure Negotiable

Our client is a major North American company in customised Intelligent Data Terminals and related equipment. They are currently setting up their European manufacturing and marketing base in Dublin.

They wish to recruit a Director of European Sales capable of expanding their current O.E.M. sales and of developing the end user market. The candidate will ideally have several years' experience in the European market in related equipment. Engineering degree or equivalent preferred. French/German an advantage but not a prerequisite. He/she will recruit and develop his/her own staff.

Compensation will be in the five figure range with appropriate fringes, plus incentive and relocation. Initial interviews will take place in Dublin and London in early September.

Send C.V. to:

J. F. Kenny,
J. B. Management Ltd.,
20/21 South William Street,
Dublin 2.
Phone: 01-710242.
Telex: 852-31796.

J.B. MANAGEMENT LTD.
20/21 South William Street
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All classified copy should reach our offices no later than 5.30 p.m. on the Monday preceding Thursday's publication. If complete artwork is supplied 12 noon on a Tuesday.

Starting salary within the range according to age, experience and qualifications.

Applications, with names of two referees, should be submitted to the City Treasurer, The Guildhall, Burton Street, Nottingham, NG1 2DE. Closing date for applications: September 12, 1979.

Ring David Abbey for further details on 01-261 8076.

MANAGEMENT &
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COMPUTER WEEKLY, August 30, 1979

telephone 01-637 9611

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If you have

- ★ Sound technical background
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If you want

- ★ Interesting work
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ring Terry Bate on 01-637 9611 for further details

Suite 201/6 Albany House 324 Regent Street London W1R 5AA 01-637 9611

MANAGEMENT &
EXECUTIVE SELECTION

JBA

Consultancy Divisional Manager

Central London

One of this country's foremost consultancy organisations, specialising to data processing and project work, has an opportunity for a senior consultant with significant managerial, marketing and technical experience to start up a new division within the company.

It is envisaged that the project work to be carried out by the new division will be naturally and logically connected with the company's current main activities, so ideally candidates should have experience in d.b., t.p., net-working, distributed processing etc. systems and projects.

A substantial salary is on offer, plus a profit share scheme based on results and a company share scheme. Superb opportunity for a top flight professional.

Contact: Andy Wright

Project Manager

City

Our client, a major international corporate bank with many EDP systems, which are either under development or in use, is seeking to appoint an experienced individual to help maintain the high standards required in its London office. As a senior member of a small team, you will be expected to make a significant contribution to both development and maintenance of new business applications.

Applicants must be well educated and should possess two years' p.t. leading experience ideally gained in a financial environment, while a sound knowledge of PDP11 (Systech) is mandatory.

In addition to the competitive salary, the bank provides a comprehensive range of benefits, including low-interest mortgage facilities, non-contributory pension, life and medical insurance plans and an interest free season ticket loan.

Contact: Margaret Stevens

to £9,500 + mortgage

We have been retained by Westinghouse Management Systems to recruit an IBM software specialist in a sales orientated environment. The company

develop and market advanced systems S/W packages and are about to launch three new OS products to supplement their existing range, currently being used by around 2800 sites in the U.K. and Europe.

Ideally, applicants should be under 30 years old, be fully experienced in VSAM, ISAM and CICS or, at least, be totally into VS1/VS2 type software. The job will involve full support activities with total responsibility for one product. Travel to European sites will be expected and occasional training trips will also occur.

Superb opportunity for a mobile, communicative software person - excellent prospects.

Contact: Mike Creamer

Package £9,000 + Car

We have been retained by Westinghouse Management Systems to recruit an IBM software specialist in a sales orientated environment. The company

develop and market advanced systems S/W packages and are about to launch three new OS products to supplement their existing range, currently being used by around 2800 sites in the U.K. and Europe.

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Superb opportunity for a mobile, communicative software person - excellent prospects.

Contact: Mike Creamer

Systems S/W Support

Middlesex base/Europe

We have been retained by Westinghouse Management Systems to recruit an IBM software specialist in a sales orientated environment. The company

develop and market advanced systems S/W packages and are about to launch three new OS products to supplement their existing range, currently being used by around 2800 sites in the U.K. and Europe.

Ideally, applicants should be under 30 years old, be fully experienced in VSAM, ISAM and CICS or, at least, be totally into VS1/VS2 type software. The job will involve full support activities with total responsibility for one product. Travel to European sites will be expected and occasional training trips will also occur.

Superb opportunity for a mobile, communicative software person - excellent prospects.

Contact: Mike Creamer

up to £7,000

A small mini-computer systems company, with an impressive growth record, requires a sales executive to expand its business in the Midlands and North of England. The successful applicant will have complete responsibility for selling computer hardware and standard or customized software and will report direct to the Managing Director.

Candidates should have several years' good experience in the computer industry at either a sales or a technical level. Selection will be based on personality coupled with the ambition to succeed in selling.

A challenging ground floor sales opportunity with lots of scope for an achiever.

Contact: Bev Stevens

Customer Support Specialists

Berkshire

A large well-known manufacturer has opportunities for Systems Designers to work on the development of real-time industrial systems, using mini and micro-computers.

Applicants must have at least four years' experience in design and programming of automation, military or process control systems and should be familiar with a real-time language such as CORAL or RTIL2.

Salaries are negotiable according to experience. Large company benefits, including an excellent relocation package.

Contact: Jim Baker

up to £7,000

Our client, a small but dynamic systems house, is expanding its Customer Support team to cope with the increase in business and is looking for experienced staff to work on real-time turnkey projects.

Applicants should have a sound background in computing with at least two years' spent in the development and programming of special real-time turnkey systems using mini or micro-computers. Ability to take a project from initial design to final customer acceptance is essential. Additional experience in project management or training would be an asset.

Salaries are negotiable and are not likely to be a limiting factor for candidates with the right experience and potential.

Contact: Jim Baker

for the appropriate consultant.

If your qualifications do not match the above positions but you are seeking other opportunities please contact us anyway.

JAMES BAKER ASSOCIATES, International Personnel Consultants,

32 Savile Row, London W1, Tel: 01-439 0311.

PROGRAMMERS ARE YOU HUNGRY?

- * Earn up to £7,500 in the food industry!
- * A new IBM 4300 has been ordered for you!
- * New on-line systems to get your teeth into!

Based in Hertfordshire, our client is a leading international company in the food manufacturing industry. Right now they need programmers with at least 12 months' experience in COBOL to develop a range of new on-line systems which will serve the company into the 1980s. They also need experienced COBOL programmers with a good knowledge of one of the following — CICS/VS/VSAM/BAL to work closely with Systems Analysts on new applications. You can start on an IBM 370 under DOS/VS and get full training on IBM 4300 which is due later this year. The tremendous variety of existing applications and those planned for development will help satisfy your hunger. There are excellent career prospects with the department and you will add considerably to your present skills and get a high level of job satisfaction. There is a lively sports and social club and, in case you are still hungry — a subsidised restaurant. The company will also help with relocation costs where appropriate. For more information please call Barry Holden or write to him at

Castle Computer Services Limited
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Most software people think only 25% of the time.

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Section Leader up to £8,000

You see how would be one of several working on systems that will fly operationally or will simulate the real world operating environment, and your people would handle technical design of specific parts of the system.

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We have just installed a System 5000 computer to handle our order processing and accounting functions. Considerable expansion is expected in later phases.

The new Data Processing Manager will be the Company's only data processing specialist. He/she will have the following main responsibilities:

Managing the implementation of the initial systems. Controlling the operations of the systems on a day-to-day basis. Preparing and implementing plans for systems expansion.

This is an excellent opportunity for a young data processing professional seeking to move into a management position. Candidates should have a minimum of three years' systems analysis and programming experience. They should also be able to show some experience of project management particularly in commercial and accounting systems. Knowledge of Basic Plus programming language is essential.

For application form, contact:

Personnel Department
Whitman Ltd.
Springfield Mill
Madison, Kent
Tel: (0822) 61081

UNIVERSITY OF LIVERPOOL COMPUTER LABORATORY

Applications are invited for two posts working with

Microprocessors

In the rapidly expanding Microprocessor Unit.

Appointments will be made on the following scales:

Programmer/Analyst

£8555-£7521 per annum

and initial grants and salary will be determined according to qualifications and relevant experience.

A degree in Digital Systems, Electronics or Computer Science is normally required.

Application forms and further particulars may be obtained from:

Mr. K. Sleath, Computer Department, P.O. Box 147, Liverpool L69 3BX.

The closing date for receipt of applications is 21st September, 1979, and it is anticipated that interviews will be held in early October, 1979.

Interviews will be held in early October, 1979.

For application form, contact:

Personnel Department
Whitman Ltd.
Springfield Mill
Madison, Kent
Tel: (0822) 61081

HERTFORDSHIRE DE HAVILLAND COLLEGE Blairney Way, Boreham Wood, Herts.

Would you like to join our
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If so, we have vacancies for full-
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Please apply by letter or telephone to

Mr. K. Sleath, telephone 01-683-6024.

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£7,000 (inclusive of 3-shift allowance)

LOLA (London On-Line Local Authorities) provides computer facilities to a consortium of four large London Boroughs and currently operates a S370/158AP with 4 megabytes using MVS. On-line updating facilities are performed under IMS/VS supporting over 130 remote VDUs. A TSO and APL network is currently being set up and a mini-computer attached to the network is in operation.

If you like what you have read, have at least 18 months' IBM operating experience, and would like to know more about our organisation, then come along to an informal evening at LOLA on WEDNESDAY, 5 SEPTEMBER, AT 6.30 P.M. Light refreshments will be provided.

If you can't make this date then telephone Ext. 266 to talk to our Chief Operator, Peter Anthony, who would be happy to discuss your career prospects within LOLA.

YOU MAY NOT HAVE THE NECESSARY ATTRIBUTES AT THE MOMENT BUT LOLA OFFERS A COMPREHENSIVE TRAINING PATH AND CAREER STRUCTURE TO ENABLE YOU TO MEET YOUR FULL POTENTIAL.

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**MID GLAMORGAN COUNTY
COUNCIL**

County Treasurer's Department

**SENIOR
SYSTEMS
ANALYST
(TECHNICAL PROJECT TEAM)**
£5,721-£6,627 per annum

The Authority operates both ICL 2972 and 1904S computers and this post involves responsibility for the development of systems and the implementation of technical software for the Planning, Architect's and Highways Departments of the County Council. The team is also responsible for a large examination processing system developed on behalf of the Welsh Joint Education Committee.

A minimum of two years' systems experience preferably of a technical nature and a relevant degree or recognised qualification is essential.

Commencing salary will depend on qualifications and experience.

Benefits of working with the Authority include:

1. A minimum graduate for software development and maintenance. Some experience of TUTOR and COBOL and/or graphics would be desirable.
2. An opportunity to participate in workshop design problems in conjunction with industry. The successful applicant will be required to maintain a close liaison with the ICL 2972 and 1904S system support units.
3. An opportunity to participate in workshop design problems in conjunction with industry. The successful applicant will be required to maintain a close liaison with the ICL 2972 and 1904S system support units.
4. Flexible working hours.
5. Experience of 2900 computers.
6. Contributory pension scheme.
7. The County Council's scheme for the payment of lodgings and disturbance allowances will apply.
8. Subsidised canteen facilities.
9. National Conditions of Service.

Application forms (to be returned 14.9.79) are obtainable from the County Treasurer, Mid Glamorgan County Council, County Hall, Cardiff.

CANVASSING WILL DISQUALIFY

TECHNICAL SUPPORT (Ref: 16A)

Would suit Senior Operator wishing to work days or Shift Leader with TP experience gained in-house or bureu. Extensive liaison with users. Salary £4000. Area: Burgess Hill. Contact KIM.

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18 months ICL experience with 1900 or 2903. 2 shifts — Salary to £4500. Area: Croydon/Wallington.

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Sound commercial systems expertise is essential together with a proven project record and the successful applicants can look forward to a progressive future with the opportunity to gain senior project management experience.

Our Client is an international market leader in its business area and offers the people appointed a progressive career prospect. The competitive commencing salaries are further enhanced by the package of large company benefits, and some opportunities exist for travel within Europe.

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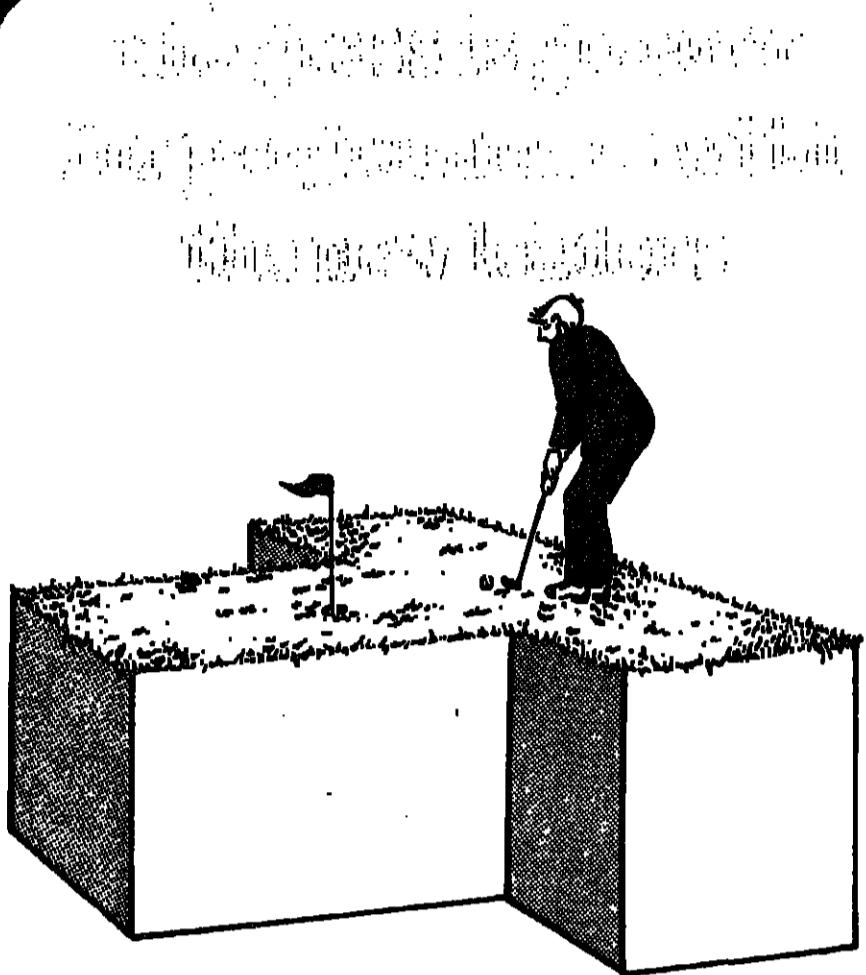
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Interested? Contact Sue Horner, Personnel Officer, Tesco Stores Ltd., Delamere Road, Cheshunt, Herts, EN8 9SL. Telephone: Waltham Cross 32222.

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Programming Manager for major International Project London based

Planning Research Corporation is a \$250m international consultancy with interests in the commercial, industrial, Governmental and military fields. At present our Management Sciences group is undertaking a major expansion programme in the UK, Europe and the Middle East.

Our first projects are under way, and as a result we are setting up a major Cost Information System supporting, planning and budgeting for the total construction of two new cities in the Middle East. The system is based on IBM 370s in London and on site.

These projects have led to a need for a programming manager to oversee the design, installation and commissioning of the programs required. Ideally, applicants will be Analyst/Programmers with 5 years' experience — preferably with a minimum of 2 years' supervision of a team of programmers coupled with proven experience of systems analysis and design. A scientific or engineering background is desirable. Systems experience must include good knowledge of Fortran, OS/VS1 or VS2, and TSO (with experience of writing/designing CLISTS).

The appointment will be based in Central London but travel to the Middle East will be required as necessary.

The proposed salary will be £8500 but will not be a limiting factor for candidates who match our experience/qualifications profile exactly.

We are being assisted by Charles Barker-Coulthard who are conducting initial interviews.

Please write with full details, or telephone for an application form quoting reference 466/6 to Charles Barker-Coulthard Limited, 30 Faringdon Street, London EC4A 4EA. Tel: 01-236 0526.



Planning Research Corporation International

COMPUTER WEEKLY DP Opportunities in Banking & Insurance

Special Feature September 6 Issue

The September 6 issue of Computer Weekly — Britain's largest circulated computer publication will contain a special feature outlining the career opportunities and employment prospects open to data processing personnel in banking and insurance.

The shortage of experienced DP personnel has been a major problem for employers during recent years and this is likely to remain the case for sometime to come.

A career in banking and insurance offers considerable scope for experienced personnel. This feature, one of several covering a variety of subjects, is geared to create a greater awareness amongst readers of those key areas of opportunity and at the same time, provide advertisers with the additional impact features secure.

Computer Weekly is the natural choice for recruitment advertising and always has had the highest circulation of any journal in the computer industry. Current average circulation has now risen to well over 90,000 with almost 25,000 more personally requested copies than the nearest competitor.

The combination of this special editorial feature and Computer Weekly's large penetration amongst analysts, programmers and operations staff etc, provides a first class recruitment advertisement platform.

Recruitment advertisement rate is based on £12.00 per scc and copy instructions should be received by Monday September 3.

COMPUTER WEEKLY

THE INDUSTRY NEWSPAPER FOR THE DP PROFESSIONAL
Published by IPC Electrical Electronic Press Limited, Dorset House, Stamford Street, London SE1 9DU
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Although we are prepared to be flexible in our appreciation of individual talents, obviously, a sound data processing knowledge is essential. Perhaps the ideal background would be to have attained programming management status with good exposure to systems and operations functions.

In all instances it will be essential to possess the ability to interpret technical jargon into terms easily understood by the layman user.

Adaptability is essential as you could act in a multitude of roles, perhaps as a Consultant, Planner, Watchdog, Training Officer and not least a line Manager. Obviously considerable emphasis must be placed on possessing the personality necessary for successful man/machine interface.

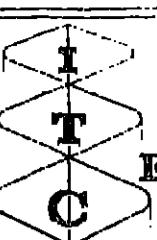
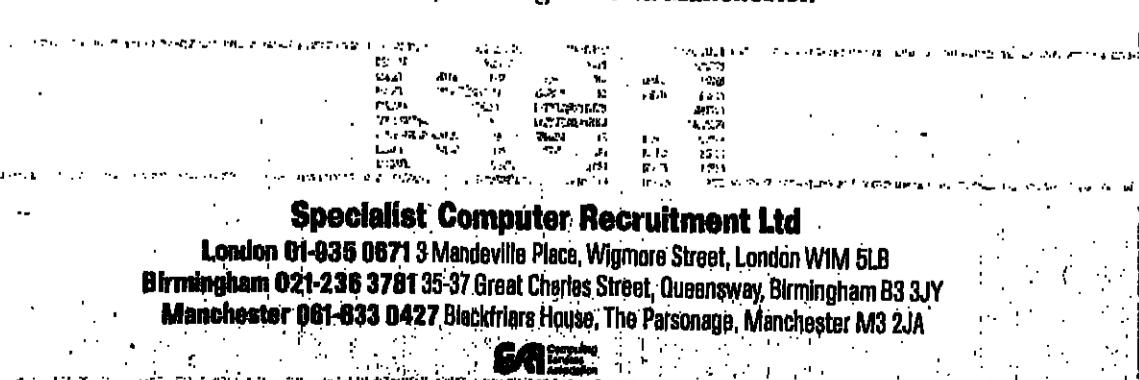
Excellent benefits are available including a generous relocation package. If you feel that you possess the attributes we are seeking, contact our Advising Consultant:

Martin Stainthorpe on: 021 236 3781 (24 hour answering service)
or: 021 744 1862 (evenings and weekends)

Interviews to be held in London, Birmingham and Manchester.

Specialist Computer Recruitment Ltd

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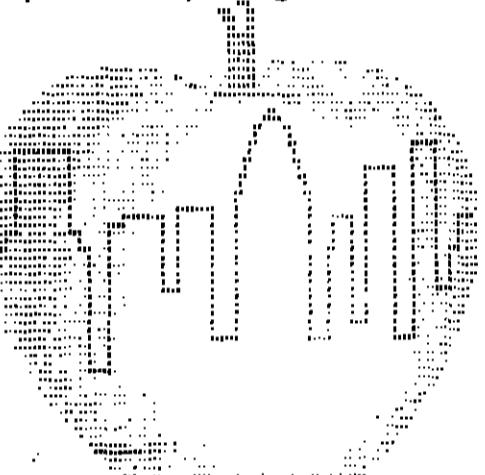
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Candidates for these permanent positions must have a knowledge of IBM and/or NCR systems. Vacancies exist for:

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SYSTEMS ANALYSTS/ PROGRAMMERS

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SYSTEMS ANALYSTS

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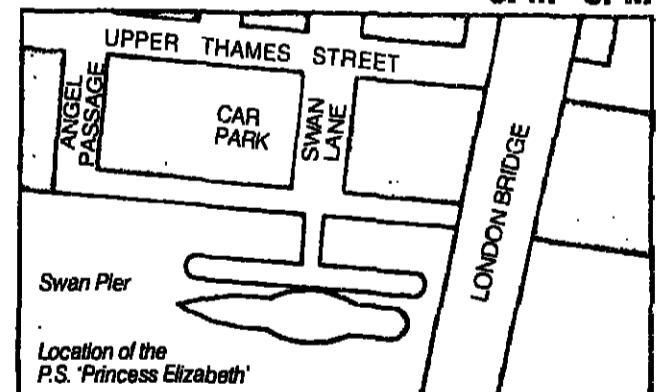
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Informal interviews September 3

Paddle Steamer Princess Elizabeth,
Swan Pier, Swan Lane, London Bridge, EC4.
5PM - 8PM



If you can't come along please write or telephone, quoting ref C3, to:-

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(£7128-£7630) inclusive of pay award, subject to local ratification (Ref. E155/CW)

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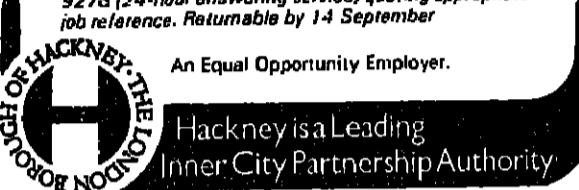
Project Officer

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This post requires a minimum of two years' experience in the O & M Management Services field, in order to carry out a wide range of assignments. The anticipated starting salary will be up to £6048, within a career grade structure. Qualifications are desirable but aptitude and personality are qualities primarily sought. There are good prospects for advancement within the management services field.

For further details and application form, please write to Head of Borough Personnel and Secretarial Services, Town Hall, Mare Street E8 1EA, or telephone 01-986 9278 (24-hour answering service) quoting appropriate job reference. Returnable by 14 September.

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The appointment, which would extend for three years in the first instance, should be of interest to younger people with a degree in a relevant discipline, experience in data processing, and who are keen to apply themselves in a responsible and creative role.

Starting salary will be £1475-£1875.

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Our client is one of the most advanced commercial organisations in Kuwait. A multi-national company, they are one of the largest General Motor Dealers in the world and also have interests in Electronics, Construction and Travel.

The Management Information Services Group plays a major part in the continued development of the Company. We have been asked to recruit an experienced Manager to take charge of the Technical Services area of this group. This is a highly challenging position and the successful applicant will probably have a Degree and a minimum of two years management experience, backed up by seven or more years experience in data processing.

An extensive knowledge of IBM hardware and software products is essential and candidates must be thoroughly familiar with IBM operating systems, systems analysis and programming, and both high and low level languages. Good knowledge of telecommunications is essential. The successful candidate will provide a high level of technical support to the entire MIS group and will be extensively involved in evaluation, recommendation, acquisition and implementation of hardware and software, particularly in the data base and data communications areas. The position will involve the supervision of a small team of Technicians and liaison with senior management on configuration effectiveness, and work in progress.

The position carries an extremely attractive TAX FREE salary and a comprehensive benefits package including:

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Ref. 0117CW

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Systems Analyst with knowledge of computerized telephone switching, traffic handling, call processing, etc. Experience in processor configuration and the ability to design software to meet the specification.

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Ref: GWK 190879

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A number of Programmer/Analysts are required with a minimum of 2 years practical experience in debugging real-time software.

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We are seeking computer professionals with this experience in one or more of the following areas of application:

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or Mark Pulver on 01-261 8174

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Applications are invited from young social science graduates for a Scientific Officer post with the Social Science Research Council.

The successful candidate will work as part of a team providing the secretariat for the Computing Committee which is concerned with the support of software development and the use of computers in social science research. Applicants will therefore need to be familiar with computing facilities and problems. Knowledge of one or more relevant software would be an advantage but not necessarily at a detailed programming level.

The staff of the secretariat are not themselves engaged in research, but provide support for the Committees which assess applications for grants to support research projects being undertaken in universities and independent institutions and which are involved with a variety of other bodies relating to research in the field which they cover.

Applicants should normally be under 27, have a good honours degree and a genuine interest in research administration.

Salary scale £4,069-£5,086 per annum including London Weighting (from 1 January 1980 £4,371-£5,286). Starting salary may be above the minimum depending on level of degree and experience. The hours of work are 30 per week, excluding lunch hours, and the leave entitlement is 20 days plus 10% public and privilege holidays. The Council has its own non-contributory pension scheme.

Application forms and further details may be obtained from: Mrs. Anna Glaser (Ref. SD/CW), SOCIAL SCIENCE RESEARCH COUNCIL, Temple Avenue, London EC1Y 8AH. Tel: 01-585 0222 Ext. 111. Closing date for applications: 15th September 1979.

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Application forms, which are returnable by Wednesday, 19th September, 1979, are available from the Divisional Manager.

George Ogilby
Divisional Manager

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Duties will include the development and preparation of programs, systems and computer compatible data in connection with surface water and groundwater studies and models, engineering resource, and flood studies and models; engineering design studies and other studies and models concerned with chemical data, quality control and abstraction control. The Division at present operates two on-line computer terminals and a small in-house computer with a number of peripheral units. The successful applicant will have responsibility for the overall effective and efficient use of computer facilities and, in particular, will act as the Division's Liaison Officer in connection with the Authority's Honeywell system based at Huntingdon.

The collection of Hydrometric, scientific, engineering, chemical, operational control and abstraction data forms a major part of the Division's workload, both routine, and in a development sense. It is essential that such data is made competitive and developed for effective and efficient use for management, engineers, scientists and administrators. The post offers an interesting opportunity to widen and broaden experience in applied computer techniques and to gain specialist knowledge in connection with water management.

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THE SALES AND MARKETING BIT

A formal 'job spec' is essential for every salesman

A READER wrote in the other day describing a situation in which salesmen all too often find themselves immersed.

My correspondent works for an equipment manufacturer and is a member of a selling team. He is a conscientious and hardworking salesman and whenever any of his clients telephone the office with a problem, he does whatever is necessary to make the caller happy. Unfortunately, when clients find it necessary to seek a solution to non-sales problems (if there is such a thing) then the level of enthusiasm from other departments is substantially lacking.

Sometimes the salesman's refusal to become involved can be to the client's detriment. If that happens too often, then there is something drastically wrong with the salesman's company and the remedy is in his own hands.

The cold fact has to be observed: it's the salesman's employer who pays him, not the client, and loyalties must take that truly into account.

The result is obviously a severe loss of selling time and consequently a loss of commission earnings and a target performance which is less than it might be.

What is the solution to this kind of situation? As far as I can see it is a function of what one is employed to do. While a salesman, above all people, needs to be very flexible in his attitudes and actions, he needs a point of reference so that when all else fails, he can make some kind of demarcation between his responsibilities and those of other people.

A salesman is employed to sell, but in his role of being the company to the client and the client to the company, he can become everybody's 'whipping boy' when things go wrong. That is why it is essential for every salesman to have a formal job specification which precisely states his responsibilities, and if necessary his non-responsibilities.

Particularly in these days of the Employment Protection Act, any salesman operating without a job specification is a fool to himself.

Assuming the salesman is armed with a formal statement of his role within the company, it should then simply be a matter of discussing the problem with his sales manager. After all, the loss of selling time must also have a direct effect on his performance too, and consequently on that of the company as a whole. Ultimately, the managing director will want to know where such problems emanate and what has to be done to sort them out.

On the other hand, if the company shows no interest in providing effective client support, then the salesman's best action is to find a company that does.

Having said all that, my final advice is to stick to what you know best.

TRADER

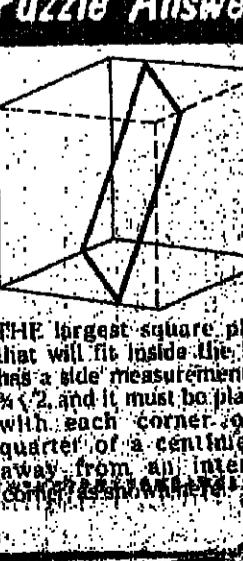
PRODUCT NOTE

Converter

BURR-BROWN has introduced a low-cost digital to analogue converter. The DA 71 is available for three types of digital input TTL levels.

Burr-Brown, International (CW), 17 Exchange Road, Watford, Tel: 0923 33837.

Puzzle Answer



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NEWS IN BRIEF

STSC reports \$927,000 loss

A LOSS in Europe of \$927,000 on a turnover of only \$321,000 has been reported by APL specialist Scientific Time Sharing Corp. in the results for its 1979 fiscal year which ended on May 31.

The president of STSC in the US, Daniel Dyer, said that expansion in Europe had been more expensive than expected.

Good start

THE ICL 7700 word processor, which can be used as a stand-alone system but is primarily designed for use with ICL mainframes, has got off to a satisfactory start, with UK orders for about 40 worth over £600,000.

Repeat course

LOUGHBOROUGH University's five-day course on computer ergonomics for managers and designers is being repeated from September 24 to 28. Topics to be covered included the design of terminals, computer environment, user software interfaces, and documentation. Attendance fee including accommodation is £240. Information from (0509) 63171, ext 302.

Fairchild visit

SECRETARY of State for Trade John Nott is to visit the Fairchild semiconductor facility in Mountain View, California, next month during a tour of Australia, New Zealand, Fiji and the US West Coast. He will also address the British American Chamber of Commerce in Los Angeles.

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T-1602 100 cps Bi-Directional printer with LA160 interface	£100.00	£1650
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220% growth in personal systems in 1980

A UK MARKET for personal computers of some £272 million is being predicted for 1983 by the Commercial Intelligence Unit of ITT Consumer Electronics, the manufacturer of the ITT 2020 microcomputer system.

This figure, which does not include potential sales of single board kit system, corresponds to the company's estimate of unit sales in that year, 250,000 systems, multiplied by their estimate of the average sales price, £1,080, for such equipment.

The research effort is part of the company's growing commitment to the 2020 system, which it is assembling under licence in this country from Apple in the US.

The predictions include some interesting estimates of the way ITT feels the market will develop. It sees little scope for a hobby market, and expects that the majority of sales will be to business establishments.

This year, it forecasts sales of 25,000 systems in the UK, with the big growth in the market coming in 1980. Then, it predicts a jump in unit sales of about 220%, to 80,000

systems. Growth in subsequent years will tail off slightly, with 1981 growing 8.7% over 1980, 1982 growing by 6.9% and 1983 showing a 2.5% growth.

ITT is also suggesting that bubble memory could have a significant impact on microcomputer systems by the mid 1980s. It expects to see volume production of these devices by 1982, at a price that would produce memory systems price-competitive with current audio cassette equipment.

IBM ousts ICL in supermarket chain

AFTER wresting Tesco from ICL last year, IBM is replacing ICL at another supermarket chain, Mac Markets, as the result of a merger last week between Mac Markets and International Stores, an IBM user.

International's parent, BAT Industries, owns 75% of the new merged supermarket group, and the plan is to centralise all computer operations over the next three years on to an IBM mainframe at a new installation at Bracknell.

ICL was also the victim of rationalisation of DP activities within the Grand Metropolitan Hotels group, whose DP division, Grandmet Information Processing, Grip, decided to

standardise on IBM equipment (CW, February 17, 1977). Grip was formed after Grandmet took over brewers Watney Mann.

Mergers and takeovers usually mean lost business for at least one computer company, but one announced last week between the Newcastle Permanent and the St Andrews building societies leaves everybody happy. The Newcastle Permanent has a Burroughs B1830, recently upgraded from a B1714, while the St Andrews has a Burroughs L series visible record computer. At present there are no plans to merge the two computer operations.

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